

Mission to Mars



Welcome to Day 1 of your trip to Mars. The team that arrives first will be immortalized in the sands of Mars with an imprint of their foot as proof of humanities first steps on a new planet!

After completing each problem have your teacher initial it before you move on to the next stage of your mission!

Lift Off

Your space shuttle is accelerating at a constant rate of 24m/s^2 . If it has an initial velocity of 680 m/s , how fast will it be going after 20s ?

$$v_f = v_i + at$$

Initial from teacher:_____

Known

Unknown

Reach Outer Space

Luke drops a pile of roof shingles from the top of a roof located 8.52 meters above the ground. Determine the time required for the shingles to reach the ground. (Remember: gravity on Earth has a constant acceleration value of 9.8m/s^2 .)

$$x_f = x_i + v_i t + \frac{1}{2} a t^2$$

Initial from teacher: _____

Known

Unknown

Travel along your Hohmann transfer orbit

A bike accelerates uniformly from rest to a speed of 7.10 m/s over a distance of 35.4 m . Determine the acceleration of the bike.

$$v_f^2 = v_i^2 + 2a(x_f - x_i)$$

Initial from teacher: _____

Known

Unknown

Day 200 in Space

Ben Rushin is waiting at a stoplight. When it finally turns green, Ben accelerated from rest at a rate of a 6.00 m/s² for a time of 4.10 seconds. Determine the distance Ben's car covered during this time period.

$$x_f = x_i + v_i t + \frac{1}{2} a t^2$$

Initial from teacher: _____

<u>Known</u>	<u>Unknown</u>

Arrive at Mars!

Congratulations, you and your team have made it to Mars but WATCH OUT! You guys are getting close to the surface at a very fast rate and need to stop in 500000m so you don't crash. If you are going 4000m/s and decelerate at a constant rate of 20m/s² will you be able to stop within 500000m?!

$$v_f^2 = v_i^2 + 2a(x_f - x_i)$$

Initial from teacher: _____

Known

Unknown